CLAIMS

1. A refolded recombinant T cell receptor (TCR) which comprises:

i) a recombinant TCR α or γ chain extracellular domain having a first heterologous C-terminal dimerisation peptide; and

ii) a recombinant TCR β or δ chain extracellular domain having a second C-terminal dimerisation peptide which is specifically heterodimerised with the first dimerisation peptide to form a heterodimerisation domain.

2. A biologically-active recombinant T cell receptor (TCR) which comprises:

i) a recombinant TCR α or γ chain extracellular domain having a first heterologous C-terminal dimerisation peptide; and

ii) a recombinant TCR β or δ chain extracellular domain having a second C-terminal dimerisation peptide which is specifically heterodimerised with the first dimerisation peptide to form a heterodimerisation domain.

3. The recombinant TCR according to claim 1 or claim 2, wherein a disulphide bond present in native TCRs between the α and β or γ and δ chains adjacent to the cytoplasmic domain, is absent.

4. The recombinant TCR according to claim 1, 2 or 3, wherein the heterodimerisation domain is a coiled coil domain.

5. The recombinant TCR according to claim 4, wherein the dimerisation peptides are c-jun and c-fos dimerisation peptides.

6. The recombinant TCR according to any one of claims 1 to 5, comprising a flexible linker located between the TCR chains and the heterodimerisation peptides.

7. The recombinant TCR according to any one of claims 1 to 6, expressed in an *E. coli* expression system.

8. The recombinant TCR according to any one of claims 1 to 7, which is biotinylated at the C-terminus.

9. The recombinant TCR according to any one of claims 1 to 8, labelled with a detectable label.

10. The recombinant TCR according to any one of claims 1 to 9, linked to a therapeutic agent such as a cytotoxic agent or an immunostimulating agent.

11. Nucleic acid sequences encoding the recombinant TCR chains of the recombinant TCR according to any one of claims 1 to 7.

12. A nucleic acid sequence according to claim 11, in an *E. coli* expression vector.

13. A method of making a recombinant non membrane bound T cell receptor, which method comprises expressing:

i) a recombinant TCR α or γ chain extracellular domain having a first heterologous C-terminal dimerisation peptide; and

ii) a recombinant TCR β or δ chain extracellular domain having a second C-terminal dimerisation peptide which specifically heterodimerises with the first dimerisation peptide to form a heterodimerisation domain;

and refolding the chains together *in vitro* to produce a TCR heterodimer.

14. The method according to claim 13, wherein refolding is carried out in a refolding buffer comprising a solubilising agent.

15. The method according to claim 14, wherein the solubilising agent is urea at a concentration of at least 0.1M.

16. The method according to claim 15, wherein the solubilising agent is urea at a concentration of about 5M.

17. The method according to any one of claims13 to 16, wherein the chains are denatured in a denaturing buffer prior to refolding.

18. The method according to claim 17, wherein the denaturing buffer contains DTT or guanidine as a reducing agent.

19. The method according to any one of claims 13 to 18, wherein the TCR is the recombinant TCR according to any one of claims 1 to 7.

20. A recombinant TCR produced by the method according to any one of claims 13 to 19.

21. A multimer of the TCR according to claim 20.